

AMENDMENTS TO THE CLAIMS

1. (Currently Amended) A method of computing response time of a web server, comprising the steps of:

placing a plurality of correlation tags in data at networking and application layers, wherein said tags allow for later identification of said data;

collecting said data from said networking and application layers, ~~wherein said data corresponds to a single event;~~

identifying, using said correlation tags, a plurality of data corresponding to a single web event;

combining said data corresponding to the single web event from said networking and application layers into a metric, ~~wherein said data corresponding to a single web event is identified;~~ and

calculating, using said metric, client perceived response time of the single web event.

2. (Original) The method of claim 1, wherein said event is selected from one of a web page download and a web session.

3. (Original) The method of claim 1, wherein said calculating step is performed using analytical models of response time.

4. (Currently Amended) A method of estimating of a perceived response time of at least one web server computing device to one or more client computing devices connected to the at least one web server device via a network, the method comprising the steps of:

generating and placing a session identifier (ID) as a correlation tag in each of a plurality of requests sent by a client to a web server device, wherein said correlation tags identify said requests;

generating and placing a connection identifier (ID) as a correlation tag in each communication packet sent between the client and the web server device;

identifying, using said session identifiers and connection identifiers, requests and communication packets that correspond to a single event;

combining said identified ~~plurality of~~ requests and said communication packets into a metric, ~~wherein said each request and communication packet corresponding to a single event is identified;~~ and

estimating, using said metric, client perceived response time of the single event of said at least one web server computing device to a request by said one or more client computing devices connected to the web server device via a network.

5. (Original) The method of claim 4, wherein the network is the Internet.

6. (Original) The method of claim 4, wherein said step of generating and placing the session ID further comprises a step of establishing a web session between the client and the web server device.

7. (Original) The method of claim 4, further comprising a step of logging each web session between the client and the web server device.

8. (Previously Presented) The method of claim 4, wherein said step of generating and placing said connection ID further comprises a step of establishing a network connection between the client and the web server device.

9. (Original) The method of claim 4, further comprising a step of logging said each communication packet sent between the client and the web server.

10. (Original) The method of claim 4, further comprising a step of grouping all of said plurality of requests and said communication packets corresponding to a single event.

11. (Original) The method of claim 4, wherein said estimating step further comprises the steps of:

- a) retrieving a page composition vector and TCP/IP round trip time (RTT), packet loss rate, and average connection time T_c ;
 - b) calculating time $T_1 = T_c + C_1(b_1)$ and time $T_2 = C_1(o) + T_c + C_2(b_2)$ and setting a loop counter;
 - c) averaging T_1 and T_2 by $(T_1 + T_2)/2$ and terminating processing if the loop counter is less than or equal to the value n ;
 otherwise, if T_1 is smaller than T_2 , T_1 is set to $T_1 + (RTT/2) + C_1(BI)$, and
 if T_1 is not smaller than T_2 , T_2 is set to $T_2 + (RTT/2) + C_2(BI)$; and
 - d) incrementing the loop counter and repeating step c,
- wherein the page composition vector is composed of $\{b_1, b_2, \dots, b_n\}$ and o ,
 b_i , where i is an number 1, 2, ..., being the size of the i -th component of the web page,
 n being the number of components,
 o being the offset at which first component is embedded in a container page,
 $C_1(y)$ being the time it takes to download y bytes on a first TCP/IP connection between the client and the web server device, and
 $C_2(y)$ being the time it takes to download y bytes on a second TCP/IP connection between the client and web server device.

12. (Currently Amended) An apparatus for estimating a perceived client response time of at least one web server computing device to one or more client computing devices connected to the at least one web server via a network, the method comprising:

a means for generating and placing a session identifier (ID) as a correlation tag in each of a plurality of requests sent by the one or more client computing devices to the at least one web server, wherein said correlation tags identify said requests;

a means for generating and placing a connection identifier (ID) as a correlation tag in each communication packet sent between the one or more client computing devices and the at least one web server;

means for identifying, using said session identifiers and connection identifiers, requests and communication packets that correspond to a single event;

a means for combining said identified ~~plurality of~~ requests and said communication packets into a metric, ~~wherein said each request and communication packet corresponding to a single event is identified~~; and

a means for estimating, using said metric, the perceived client response time of the single event of the at least one web server computing device to a request by the one or more client computing devices connected to the web server via the network.

13. (Currently Amended) A computer program device readable by a machine, tangibly embodying a program of instructions executable by the machine to perform method steps for an apparatus for estimating a perceived client response time of at least one web server computing device to one or more client computing devices connected to the at least one web server via a network, the method comprising:

a means for generating and placing a session identifier (ID) as a correlation tag in each of a plurality of requests sent by the one or more client computing devices to the at least one web server, wherein said correlation tags identify said requests;

a means for generating and placing a connection identifier (ID) as a correlation tag in each communication packet sent between the one or more client computing devices and the at least one web server;

means for identifying, using said session identifiers and connection identifiers, requests and communication packets that correspond to a single event;

a means for combining said identified ~~plurality of~~ requests and said communication packets into a metric, ~~wherein said each request and communication packet corresponding to a single event is identified~~; and

a means for estimating, using said metric, the perceived client response time of the single event of the at least one web server computing device to a request by the one or more client computing devices connected to the web server via the network.